AMENDMENTS TO THE CLAIMS

1. (Original) A device for concentrating particles, the device comprising:
   a. a channel having an inlet and first and second outlets;
   b. a first sieve disposed between the inlet and the first outlet, wherein the first sieve is not disposed between the inlet and the second outlet; and
   c. a force generator to direct particles to the first sieve.

2. (Original) The device of claim 1, wherein the force generator produces a greater flow rate through the first outlet than the second outlet.

3. (Original) The device of claim 1, wherein the sieve is disposed in a region of the channel, and wherein the force generator comprises a channel widening at a point in the region containing the sieve such that fluid entering the region is drawn through the sieve.

4. (Original) The device of claim 3, wherein the pressure drop along the length of the sieve in the direction of flow between the inlet and the second outlet is substantially constant.

5. (Original) The device of claim 1, further comprising a third outlet and a second sieve disposed between the inlet and the third outlet, wherein the sieves are disposed in a region of the channel, and wherein the force generator comprises a channel widening at a point in the region containing the sieves such that fluid entering the region is drawn through the sieves.

6. (Original) The device of claim 5, wherein the pressure drop along the length of the sieves in the direction of flow between the inlet and the second outlet is substantially constant.

7. (Original) The device of claim 1, wherein the force generator comprises two electrodes, wherein the first sieve is disposed between the electrodes such that, when a DC voltage is applied to the electrodes, charged particles are capable of being moved to or away from the first sieve by electrophoresis.

8. (Original) The device of claim 1, wherein the force generator comprises two or more electrodes capable of producing a non-uniform electric field such that particles are capable of being moved to or away from the first sieve by dielectrophoresis.

9. (Original) The device of claim 1, wherein the force generator comprises a curved channel, such that particles are capable of being moved to the first sieve by centrifugal force.

10. (Original) The device of claim 1, wherein the first sieve allows passage of maternal red blood cells but not fetal red blood cells.

11. (Original) A method of producing, from a particle-containing fluid, a sample enriched in a target population of particles, the method comprising the steps of:

a. providing a device comprising:

i. a channel having an inlet and a first and a second outlet; and

ii. a first sieve disposed between the inlet and the first outlet,

wherein the first sieve is not disposed between the inlet and the second outlet; and

iii. a force generator to direct particles to the first sieve;

b. directing the particle-containing fluid through the inlet into the channel;

c. actuating the force generator so that particles in the fluid are directed to the first sieve and do or do not substantially pass through the first sieve based on the size, shape, or deformability of the particles; and

d. collecting the effluent containing particles of the target population from the first outlet if the particles of the target population substantially pass through the first sieve or from the second outlet if the particles of the target population do not substantially pass through the first sieve, thereby producing the sample enriched in the target population of particles.

12. (Original) The method of claim 11, wherein said force generator produces a greater flow rate through the first outlet than the second outlet.

13. (Original) The method of claim 11, wherein the sieve is disposed in a region of the channel, and wherein the force generator comprises a channel widening at a point in the region containing the sieve such that fluid entering the region is drawn through the sieve.

14. (Original) The method of claim 13, wherein the pressure drop along the length of the sieve in the direction of flow between the inlet and the second outlet is substantially constant.

15. (Original) The method of claim 11, wherein the device further comprises a third outlet and a second sieve disposed between the inlet and the third outlet, wherein the sieves are disposed in a region of the channel, and wherein the force generator comprises a channel widening at a point in the region containing the sieves such that fluid entering the region is drawn through the sieves.

16. (Original) The method of claim 15, wherein the pressure drop along the length of the sieves in the direction of flow between the inlet and the second outlet is substantially constant.

17. (Original) The method of claim 11, wherein the device further comprises a third outlet and a second sieve disposed between the inlet and the third outlet, wherein the sieves are disposed in a region of the channel, and wherein the force generator comprises a channel widening at a point in the region containing the sieves such that fluid entering the region is drawn through the sieves.

18. (Original) The method of claim 11, wherein the force generator comprises two electrodes, wherein the first sieve is disposed between the electrodes such that, when a DC voltage is applied to the electrodes, charged particles are capable of being moved to or away from the first sieve by electrophoresis.

19. (Original) The method of claim 11, wherein the force generator comprises electrodes capable of producing a non-uniform electric field such that

particles are capable of being moved to or away from the first sieve by dielectrophoresis.

20. (Original) The method of claim 11, wherein the force generator comprises a curved channel, such that particles are capable of being moved to the first sieve by centrifugal force.

21. (Original) The method of claim 11, wherein said target population comprises fetal red blood cells.

22. (New) A device for enriching a first cell type from a blood sample comprising a first inlet in communication with a channel wherein said channel comprises two rows of obstacles that direct said first cell type in a first direction and a second cell type in a second direction, and wherein said device comprises a first outlet in said first direction and a second outlet in said second direction.

23. (New) The device of claim 22 wherein said first cell type is a fetal red blood cell.

24. (New) The device of claim 22 wherein said first cell type is a cancer cell.

25. (New) The device of claim 22 wherein said second cell type is an enucleated red blood cell or a platelet.

26. (New) The device of claim 22 wherein said first cell type is larger than said second cell type.

27. (New) The device of claim 22 wherein at least 90% of said first cell type in said blood sample is directed in said first direction.

28. (New) The device of claim 22 wherein at least 95% of said first cell type in said blood sample is directed in said first direction.

29. (New) The device of claim 22 wherein said two rows of obstacles are in parallel.

30. (New) The device of claim 22 wherein said device comprises a polymer.

31. (New) The device of claim 22 wherein said two rows of obstacles direct said first cell type in said first direction and a third direction, wherein said device further comprises a third outlet in said third direction.

32. (New) The device of claim 22 wherein said channel is coupled to a pressure generator.

33. (New) The device of claim 32 wherein said pressure generator generates hydrodynamic pressure.

34. (New) The device of claim 32 wherein said pressure generator generates a centrifugal force.

35. (New) The device of claim 32 wherein said pressure generator maintains a first pressure between said first inlet and said first outlet and a second pressure between said first inlet and said second outlet.

36. (New) The device of claim 35 wherein said first pressure is less than said second pressure.

37. (New) The device of claim 32 wherein said pressure generator generates a uniform pressure drop across one of said rows of obstacles.

38. (New) The device of claim 22 wherein said device further comprises a second inlet in communication with said channel.

39. (New) A device for enriching a first cell type from a fluid sample comprising said first cell type and a second cell type, said device comprising:
a first inlet fluidly coupled to a channel comprising a plurality of obstacles that direct said first cell type in a first direction and said second cell type in a second direction, wherein said first cell type is a cancer cell or a fetal red blood cell and wherein said device further comprises a first outlet in said first direction and a second outlet in said second direction.

40. (New) The device of claim 39 wherein said second cell type is an enucleated red blood cell or a platelet.

41. (New) The device of claim 39 wherein at least 95% of said second cell type is directed in said second direction.

42. (New) The device of claim 39 further comprising a second plurality of obstacles positioned in series or in parallel to said first plurality of obstacles.

43. (New) The device of claim 22 wherein said second plurality of obstacles is positioned in series to said first plurality of obstacles and wherein the obstacles in said second plurality of obstacles are spaced apart at a smaller distance than the obstacles in said first plurality of obstacles.

44. (New) The device of claim 39 wherein said device comprises a polymer.

45. (New) The device of claim 39 wherein said channel is wider at a point adjacent said plurality of obstacles compared to a point adjacent said inlet.

46. (New) The device of claim 39 wherein said channel is coupled to a pressure generator.

47. (New) The device of claim 46 wherein said pressure generator generates hydrodynamic pressure.

48. (New) The device of claim 46 wherein said pressure generator provides centrifugal force.

49. (New) The device of claim 46 wherein said pressure generator maintains a first pressure between said first inlet and said first outlet and a second pressure between said first inlet and said second outlet.

50. (New) The device of claim 49 wherein said first pressure is less than said second pressure.

51. (New) The device of claim 39 wherein pressure drop across said plurality of obstacles is uniform.

52. (New) The device of claim 39 wherein said device further comprises a second inlet in communication with said channel.

53. (New) A method for enriching one or more fetal red blood cells in a fluid sample comprising fetal red blood cells and non-fetal red blood cells, said method comprising: applying said fluid sample to a device comprising a first inlet coupled to a channel comprising a plurality of obstacles that directs said one or more fetal red blood cells in a first direction and said one or more non-fetal red blood cells in a second direction, wherein said device

further comprises a first outlet in said first direction and a second outlet in said second direction.

54. (New) The method of claim 53 wherein said non-fetal red blood cell is a red blood cell or a platelet.

55. (New) The method of claim 53 wherein said fluid sample is a maternal blood sample.

56. (New) The method of claim 53 further comprising applying a centrifugal force to said sample.

57. (New) A method for enriching one or more cancer cells from a fluid sample comprising cancer cells and non-cancer cells, said method comprising: applying said fluid sample to a device comprising a first inlet coupled to a channel comprising a plurality of obstacles that directs said one or more cancer cells in a first direction and one or more non-cancer cells in a second direction, wherein said device further comprises a first outlet in said first direction and a second outlet in said second direction.

58. (New) The method of claim 57 wherein said non-cancer cell is a red blood cell or a platelet.

59. (New) The method of claim 57 wherein said fluid sample is a blood sample.

60. (New) The method of claim 57 further comprising applying a centrifugal force to said sample.

61. (New) A method for enriching a first cell type from a blood sample comprising said first cell type and a second cell type, said method comprising: applying said blood sample to a device comprising a first inlet

adapted for delivering said blood sample to a channel wherein said channel comprises two rows of obstacles that direct said first cell type in a first direction and a second cell type in a second direction, and wherein said device comprises a first outlet in said first direction and a second outlet in said second direction.

62. (New) The method of claim 61 wherein said obstacles are separated from one another by a microfluidic gap.

63. (New) The method of claim 61 wherein said first cell type is a nucleated cell and said second cell type is an enucleated cell.